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CONTENTS

Critical Present-day Issues in Administration of State and Higher Education: B. R. BUCKINGHAM 721

The Functions and Organization of a Bureau of Information and Investigation for the Department of Education in New York City: BENJAMIN C. GRUENBURG 728

Educational Events:

Charges against New York City Teachers; Report of the National Child-labor Committee; Federal Grants under the Vocational Education Act 733

Educational Notes and News 735

Discussion and Correspondence:

The Administration of the Smith-Hughes Act: ARLAND D. WEEKS. *The Schoolmaster in Belgium:* ROY TEMPLE HOUSE 738

Quotations:

The Health of the School Child 740

Resolution of the Massachusetts Teachers 742

Educational Research and Statistics:

Recitation as a Factor in Memorizing: ARTHUR I. GATES 743

Societies and Meetings:

The Section of Education of the American Association for the Advancement of Science 750

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SCHOOL AND SOCIETY

Volume VI SATURDAY, DECEMBER 22, 1917 Number 156

CRITICAL PRESENT-DAY ISSUES IN ADMINISTRATION OF STATE HIGHER EDUCATION

IT can not be said that the issues of state administration of higher education are being squarely met, or even consciously understood. I propose to sketch what I conceive to be some of these issues. At the outset I may say that a statement of the critical questions and the formulation of answers to them can not be derived from the acts of the state legislatures. The body of laws is one thing and the procedure under them is quite another. We are likely to think that because a law exists its administration coincides with its provisions. This may only be approximately true, and in many cases is not true even in a general way.

Schemes for the administration of higher educational institutions by state authority have their inception largely in the growing expensiveness of such education. An uneasy feeling that all is not well, that greater sums are being expended than are required by good business management, is more or less common in every state. The problem, then, is to constitute an authority which, after finding out what the facts are, shall either reveal the suspected mismanagement, or allay the suspicion that it exists.

Such an authority should represent both the people who furnish the money and the educational officers who spend it. A board, however constituted and selected, can not be thus representative unless the experts who serve it are well chosen. Such experts must, above all things, be sympathetic to the needs and opportunities of higher educational institutions. They should not, however, serve the *interests* of the educational institutions without considering also the *rights* of the people. They will be called upon to decide many questions where the issue is sharply drawn between the educational institutions and the representatives of the people. Oftener than not, these questions will involve some form of economy at an institution. If the evidence is not conclusive, the experts should decide in favor of the *status quo*. Ordinarily this will be favorable to the claims of the educational people. But a mistake in this direction involves no more than a money loss; while a mistake in the other direction would, almost certainly, involve losses of a more hurtful character. When, however, the evidence is clear, the expert must decide with courage. He must face the displeasure of the educational people without bitterness and without resentment.

The one big critical issue in the matter of the state administration of higher education is the issue of proportional treatment of existing institutions. For example, in Wisconsin four institutions are entirely supported by the state, except for student fees and revolving funds, namely, the State University, the State Normal Schools (of which there are nine), the Stout Institute, which is essentially a technical normal school, and the Wisconsin Mining School. The state extends aid to numerous other educational institutions, including the elementary schools and the high schools. About $2,400,000 are available yearly as the common-school fund. Including this,

the state expended in 1916–17 about $6,500,000 for education, of which the university received about $2,000,000, the normal schools about $1,000,000, the Stout Institute about $150,000 and the mining school about $13,000. In other words, the university received about 30 per cent. of all the educational money, the normal schools about 15 per cent., the Stout Institute 2½ per cent. and the mining school ⅛ of 1 per cent. These figures raise the question of whether the system as it has grown up under the influence of more or less energetic and successful educational officials, each pushing for appropriations, has worked out so that each type of institution is being given equal opportunity to realize its mission and to accomplish the work it was created to do. It is against public policy that one institution should be generously financed to the detriment of another.

The question of whether the state is distributing equitably its educational money requires the most delicate handling, and is likely to stir up opposition. The institution which has been receiving large supplies in comparison with other institutions will hold tenaciously to them and offer many specious arguments for their continuance.

In order that any central authority may equalize opportunities for all educational institutions, it must first be able to appraise their work accurately and convincingly. It will at once find that there are no acceptable units in terms of which such an appraisal may be made. The money side of the question is easily stated, because we have a satisfactory monetary unit. The amount of service rendered, however, can not be so satisfactorily stated, and until, after numerous trials and many errors, and with many people cooperating, acceptable units are devised, the administrative control of higher education will be precarious. It will oscillate between unnecessary liberality for one item and destructive parsimony for another, with the tendency for both conditions to be self-perpetuating.

The teaching hour as a unit of work is obviously unsatisfactory. Clearly it is not the same with a class of five as it is with a class of twenty-five. No less clearly, an hour of laboratory teaching is unequal to an hour of recitation or lecture work. Moreover, in different subjects, it is not customary to require the same number of hours of teaching. There is, for example, a tendency to require from one third to one half more hours per week of teaching in mathematics and foreign languages than in English or history. Doubtless this difference is a rough expression of the fact that an hour of teaching in mathematics entails less work than does an hour of teaching in history.

Again, the number of students taught is an unsatisfactory expression of the amount of a teacher's work, although it is used as such in some institutions. A student may be a graduate student, or a freshman. He may be doing two hours of work a week or twenty. In using the number of students as a measure of teaching, we neglect the fact that a student may recite in a given subject five times or only once a week; in using hours of teaching as such a measure, we neglect the fact that classes may consist of five students or fifty.

The best unit so far devised is a combination of the hours of teaching and the number of students, *i. e.*, the *student-hour*. It may be defined as one student taught one hour a week for a semester. According to this, a class of twenty students, taught one hour a week for half a year would yield twenty student-hours, while a class of twenty students taught three hours a week

for a semester would yield sixty student-hours. The student-hour, however, in its crude form, is itself far from ideal as a unit. The most obvious difficulty is the undoubted difference between laboratory student-hours and non-laboratory student-hours. I have counted two laboratory student-hours as equal to one non-laboratory student-hour.

The scheme of weighting whereby this seems to be justified is an illustration of the type of statistical work which must be done before valid determinations may be made concerning higher education. The student-hour for German may be equated with the student-hour for philosophy, or animal husbandry, or torts, or methods of teaching arithmetic in normal schools, by obtaining constants to be used as weights for each of the different subjects. Moreover, the work which a faculty member does in lines other than teaching must be capable of being expressed in equivalences of the same standard units. Research, extension, administration, model teaching, field work—all these must be brought into line before we can speak with confidence of service received for money spent.

These refinements have not yet been made by any one; they are not, however, impossible. For example, in determining the constant to be applied to non-laboratory teaching in order to equate it with laboratory teaching, one first ascertains the average hours of teaching of science and of non-science teachers. I found that at the University of Wisconsin college of letters and science, the average in the science departments was 6.6 non-laboratory hours and 9.1 laboratory hours per week. The average in the non-science departments was 11.4 hours per week. Assuming that a rough equality of service grows up naturally as departments develop side by side, and that the hours of teaching as found are a fair index of such equality, we may conclude that the men in the science and non-science groups work equally hard. Now, the 11.4 hours of recitation work of the non-science men exceed the 6.6 hours of recitation work of the science men by 4.8 hours. If the men in the two groups do the same amount of work, this 4.8 hours of recitation teaching must be equivalent to the 9.1 hours of laboratory teaching done by the science men, *i. e.*, the non-laboratory hour equals 1.9 laboratory hours. I have, therefore, used 2 as a substantially accurate constant and have divided the laboratory student-hours by it. This will serve as an instance of one rather simple determination of a statistical constant for use in higher education.[1] The lack of such work has caused higher educational institutions to neglect the lessons which they might derive from each other. There is no body of data concerning universities, colleges, technical schools and normal schools which commands confidence. Whenever a comparison is made between one institution and another, those who are interested in controverting the conclusions reached are easily able to show that comparison has been made between things that are not strictly similar. The differences may not be significant, but by directing attention to them rather than to the similarities, confusion may be created and the conclusion may be unjustly discredited.

The derivation of units and the equating of them in different fields of work by methods which are fair and convincing lie at the basis of any interpretation which may be made of educational facts. Such work will require time and cooperation. Various universities and colleges, the Carnegie

[1] I owe to Dean E. A. Birge, of the University of Wisconsin College of Letters and Science, the suggestion for the method, although I alone am responsible for the conclusion.

Foundation and the Bureau of Education, have sought, with little success, to formulate statistical systems. The need is felt, but the difficulties appear to have been insurmountable.

I have stated that I consider the greatest single issue to be the giving of equal opportunity to all state educational institutions without favoritism to any. By "equal opportunity" I do not mean that the salaries of normal-school teachers should equal the salaries of university teachers; I do not mean that the hours of teaching or the sizes of classes should be the same in different types of institutions. I mean that it should be the duty of a state administrative authority to see to it that its normal schools as normal schools have an equal chance with its university as a university; that its agricultural college shall have the same opportunity to be a good agricultural college, that its mining school has of being a good mining school.

Another important issue and one which is involved in that of giving equal opportunity to all institutions is the issue of duplication of effort, *e. g.*, the question of the extent to which different types of institutions should be permitted to teach the same subjects. No one questions that a certain amount of duplication is desirable and necessary. The question, however, of the amount of it has not been settled, and from the state's point of view, there is every reason why it should be settled. The recent surveys of state institutions by the United States Bureau of Education have set up the doctrine of "major and service lines" of work, and although this distinction has been vigorously assailed, there is no doubt but that it is significant and suggestive. A major line of work is one which an institution is expected primarily to emphasize and develop. Service lines of work involve such subordinate subjects as are essential to the development of the major line. Thus engineering subjects are major lines in an engineering college, and service lines are such subjects as English and modern languages, so far as these are necessary to support the major lines of work. Such a college, however, would not be justified in offering courses in its English department in Anglo-Saxon, or in its language department in Provencal lyrics. Such courses would involve a duplication of work properly done in a college of liberal arts.

The question of duplication of effort in the training of teachers is being vigorously discussed at present, and we may consider it in this connection as affording one type of duplication. On the one hand, we have the undoubted fact that in most fields the state is not providing a sufficient number of trained teachers. On this account the tendency is to encourage or permit any educational institution which can do so to equip teachers for various lines of work. On the other hand, we have the equally undoubted fact that each kind of teaching service requires specific training; that, for example, prospective country school teachers need a specialized course of study differing from that for prospective city school teachers, and that training for high-school service should be differentiated from training for elementary-school service. If it is admitted that such specialization is desirable, then it becomes the part of good administration to adopt any means which will secure it. If it is thought that better rural school teachers, better teachers for city grades and better high-school teachers will be secured by selecting specific institutions whose special concern it shall be to train for these types of service, it is an administrative blunder to allow several different kinds of training to be done in each institution. In many states county training schools, organized to train students to

become rural school teachers, are now aspiring to become normal schools; normal schools are likewise advancing to the status of colleges or schools of education. It is necessary for a state administrative authority to reach a decision on the question of how far such movements should go. In doing so it must resolutely take the point of view of the educational needs of the state, irrespective of personal or institutional ambitions. It must balance the needs of the state for trained teachers, and the need of utilizing every existing agency to meet the demand, against the fact that when an institution pursues a major line, with service lines subordinate to it, it gains greatly in definiteness of aim and precision of method. The question of expense is also involved. The training of rural school teachers, for example, will no doubt be more expensive in the long run if scattered among several types of institutions than it will be if confined to one type of institution especially selected for this kind of work. I am suggesting, let it be understood, that this is an issue. I am not attempting a solution, but a state educational authority which fails to attempt a solution is either blind or timid.

It should be the duty of the state to interpret the educational institutions to the people and to their representatives in the legislature. A central authority is in a peculiarly favorable position to do this, since it may act with knowledge of all the institutions and from a detached point of view with respect to each of them. When a single institution seeks to interpret its work and to express its needs to the people, it does so from a partial and interested point of view. The function of a state central authority in rendering in readable form reports on the work, the needs and the opportunities of the educational institutions under its control is important and should be definitely provided for.

The state administrative authority must take into account the relation of the educational institutions to the needs of the state. It is significant that recent surveys of city school systems have laid considerable emphasis upon the industries of the cities in question. Similarly, there should be a keen realization of the relation between the occupations of the citizens of the state and the schools which the citizens maintain.

I do not, however, advocate a narrow provincialism in the administration of state institutions. It seems foolish from every point of view to discriminate against non-resident students. While it is the first duty of the state to give its citizens the best training for the work they will have to do, it ought also to be the pride of the state to maintain institutions so attractive that students beyond its borders will attend them. Such students should be made welcome. Many of them will become residents of the state and contribute to its welfare. Others will carry the prestige of the institutions abroad and this will react favorably upon the institutions themselves.

Certain tendencies are observable in state educational administration and these should be given consideration in making any administrative program. Thirty-eight of the forty-eight states have state boards of education, and it may therefore be said that the trend is strongly toward placing authority in the hands of boards rather than of individuals. The tendency likewise is to give to these boards greater powers as the years go by. Examples in support of this statement may be taken from the legislation of New York in 1914, Massachusetts in 1909, New Jersey, Pennsylvania, Arkansas and Oklahoma in 1911, California and Idaho in 1913 and Kansas,

Louisiana, Maryland and Vermont in 1915. "There can be no doubt," says President Butler, "about the general tendency being toward greater centralization. Not only are its advantages quite apparent, but the overwhelming current of legislation and the decision of the courts is making it imperative." With this added responsibility and power must of necessity go a permanency and a continuity of policy. In many states there is continually manifested a restless desire for a fresh start. Each successive legislature modifies the educational administration as different interests secure control of it. If the chief purpose of administration in respect to higher educational institutions is to be carried out—the purpose, namely, of securing for each institution an equal opportunity to realize itself and to meet the needs of the state—then those who are charged with this work must feel that they will not be discredited and their motives impugned at every turn. Each time a new set of officers is installed, these officers must learn and they will make mistakes as did their predecessors. Nor is it in human nature that they should be impartial when they know that by deciding against powerful interests they themselves will be sacrificed. There ought to be a chance for a board of education, or other state authority, to benefit by its own experience. There ought to be a realization that under almost any circumstances a continuous authority is better than a succession of authorities. There ought also to be recognition of the fact that those who do anything will arouse opposition. If you want to find officers who have no opposition, look for those that are doing nothing.

There is another question which a state authority in charge of higher education must inevitably encounter. It is the question of standardization. I know that among educational people there is a feeling that standardization is something hostile, something which represents "factory methods." This is an unfortunate error. These institutions are handling millions of dollars annually and there is therefore every reason why business methods should apply to them. If some form of standardizing has worked to advantage in other lines of business, it may be expected to do so in education. Those who decry this sort of thing think much about academic freedom and spiritual values. But there is a material as well as a human factor in every successful concern, and in the rapid growth of educational institutions the mere mechanism has failed to meet the requirements. Recognizing scholarly and spiritual leadership as the highest manifestation of efficiency, one may, without being a Philistine, take the attitude that where scholarly and spiritual leadership is genuine, it will not be injured by free and fair trial of some of the principles of organization and administration which large enterprises everywhere are finding so helpful in carrying out their purposes.

I am suggesting that it is a vital issue in state administration of higher education that there be an open-minded attempt to apply such principles. In his report to the Carnegie Foundation on "Academic and Industrial Efficiency," Mr. Morris Llewellyn Cooke concludes:

> As a result of this inquiry, the writer is convinced that there are very few, if any, of the broader principles of management which obtain generally in the industrial and commercial world which are not more or less applicable in the college field, and, as far as was discovered, no one of them is now generally observed.

It is impossible to speak of all the ways in which standardization, or what Cooke calls in another connection "business practise," may be applied. Just as I used the method of equating laboratory to non-lab-

oratory work as a type of the way in which different lines of work may be brought together into a single statement, so in the application of standards I may use the matter of class-size as an example of what I mean. Several investigators have emphasized the fact that no factor entering into the cost of instruction is more significant than that of the number of students who are taught together. A substantial increase in salaries or a decrease in the hours of teaching may be more than offset by a moderate increase in the average size of classes. For example, in the University of Wisconsin Law School, the average hours of teaching are low and the average salaries are nearly twice as high as in any other faculty of the university. Yet, because of large classes, the cost per student-hour is less than it is in three of the other six schools and colleges of the university. Another of the colleges with hours of teaching the same as the general average for the university, with salaries lower by more than three hundred dollars than the average for the university but with classes unusually small, has a unit cost about seventy per cent. higher than that of the university as a whole.

A president of a university recently told me that in his judgment the small class was "the wickedest waste in education." If this is true, we have no excuse, except our timidity, for failure to regulate it. It is true that a greater number of small classes should be expected in university work than in collegiate work or in normal schools. Much of the work which differentiates a university from a college must necessarily be done in small classes.

In our state universities, however, more than half of the teaching is of collegiate grade. Such teaching should be done as colleges do it and not as universities do graduate work. A professor who directs the research work of graduate students and who is expected to contribute by his own investigations to the sum of knowledge in his field should do relatively little teaching, but the organization which permits the teacher of undergraduates to do the same amount of teaching because he is in an institution called collectively a university is making an extravagant mistake. University teaching does not become such because done in a university; and it requires something more than a name to justify the application of university standards.

There are two kinds of small classes: (*a*) those in courses elected by but few students, and (*b*) those made by sectioning in courses taken by many students. As to the first kind, the tendency in universities to offer a multitude of courses ought to be checked unless there is demand enough for the courses to furnish classes of, say, eight or ten students. I do not mean that classes as low as four or five ought not to be permitted; what I mean is that the number of these classes should be small and the reason for them should be definitely known and approved. In many cases, especially in graduate work, a course may be offered in alternate years, or even every third year, instead of annually; or a semester course which is being offered twice a year may be offered once. In other words, courses which do not attract many students may be given less frequently than are courses in which large numbers of students enroll; while it may sometimes be good policy to discontinue courses for which the demand is small.

In courses enrolling large numbers of students, the decision as to class-size rests upon quite different ground. Since the students are available, the classes will be small only because their smallness seems desirable. The question, however, is one

of policy. Its answer is the answer to the question of how large a class should be in order to be economically and effectively taught. Again no general answer is forthcoming; but a number of answers may ultimately be given, each applying to a type of institution, or a subject, or a kind of teaching.

It is significant in this connection that every study of the efficiency of teaching in relation to size of class, except one, has shown that there is no advantage in small classes. It is true that these studies have related to elementary schools. On *a priori* grounds, however, it does not appear that there is any reason why children in elementary schools may be well taught in large classes, while students in higher educational institutions may not. In my own judgment—a judgment which is frankly tentative—for most kinds of recitation work in courses elected by large numbers of students, a basis of sectioning involving less than twenty-five students to a class does not justify its cost.

I have not entered into the work of the so-called business manager. His work is being standardized and he is getting results. I assume that every one is sympathetic to the idea of buying in large quantities, to obtaining cash discounts, to good accounting systems, labor-saving devices and the employment of sufficient clerical help to relieve higher paid officials from routine work. These are not critical issues. It is rather when we enter the field of hours of teaching and research that we raise critical issues.

The information is not at hand, however, for making final determinations concerning these issues. It is necessary to proceed slowly, and, above all, not to be destructive through the application of crudely-made standards. The immediately necessary thing to do is to make an intensive and extensive study of university, college and school economics with a view to furnishing a just basis of control. State boards of education should, in my judgment, for the next few years be largely investigating boards; they should do what the presidents and trustees of educational institutions have conspicuously failed to do—they should base educational policies upon ascertained facts and principles as these are found to exist in successful practise.

The state authority should see that no institution monopolizes an undue share of the public money. It should make plain to the people the significance, and the value, of their institutions. In order to do this, it should be continuous and reasonably unaffected by the veering winds that blow about the state capitol. Its employees should be carefully selected and well enough paid to insure their competence. Their tenure should be such that they may have the courage of their convictions without the necessity of protecting themselves personally. They should be men of broad and liberal training, capable of appreciating to the full the educator's point of view; while, at the same time, they should not forget that they exist in order that the people's point of view may likewise be taken.

B. R. Buckingham
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State Board of Education,
Madison, Wis.

THE FUNCTIONS AND ORGANIZATION OF A BUREAU OF INFORMATION AND INVESTIGATION FOR THE DEPARTMENT OF EDUCATION IN NEW YORK CITY

I. WHY SUCH A DIVISION IS NECESSARY

Some thirty to forty "surveys" of city school systems have been made in this coun-

try during the past six or seven years, in addition to many rural-district, county and state surveys. In all of these, as also in various health, housing administration, industrial and other surveys, we are constantly met with the declaration that "conditions have grown up" leading to this or that pernicious or deplorable state of affairs. We are repeatedly forced to face the fact that the world has changed since we last formulated our conception of its make-up and workings. Regardless of *why* conditions do grow up without being noticed in the growth, we have had enough of these experiences to make us realize that such "conditions" should be anticipated, or studied in the course of their growth.

The first principle of effective management of large human affairs is the practical acceptance of the evolutionary fact of constant change. And if we are to make deliberate and purposeful readjustments to changing conditions, our management must be guided by a knowledge of the nature and the extent of these changes. Moreover, a department of education must have continuous knowledge of its own workings, as well as of the community for which it works. This is recognized in the report of the Hanus Committee on School Inquiry (I., 30–31), wherein a list of some fifteen school problems is given, with the comment that most of these problems need to be studied *continuously*. That is to say, the life of the school, like the life of the community, is one of continuous readjustment, and its problems require continuous study. Occasional surveys, like snapshots, are of value; of inestimably greater value is a perpetual motion-picture. On the principle of functional or organic division of services, a school system that is large enough should have a separate bureau or division for the purpose of supplying continuous knowledge or self-scrutiny.

The development of the principle of "staff" service is carried farthest in modern military organization. This staff service means in part the scientific—that is, objective and quantitative—control of material equipments and of standard practise in the "line."

Private business not only maintains laboratories for the scientific "control" of materials and processes, for the establishment of standards, for the measurement of the effectiveness of processes, for devising new methods. It attempts also to utilize all information, from whatever sources, as soon as possible after it becomes available. And it goes out of its way systematically seeking information as to markets, materials, processes and whatever else is of concern to its successful continuance. In all of these activities special agencies are established for expert and continuous service.

In public health administration the same principle is applied in the maintenance of research laboratories and of statistical bureaus, and in the publication of statistical and other data of significance in controlling community health.

The value to a department of education of such a staff is widely recognized. In formulating the tests of a public-school system, the Report of the Committee on School Inquiry asks these questions, among others (I., 28):

> Has the school system the elements of self-scrutiny? Is it applying tests to indicate its own efficiency, or making reports to indicate progress or the reverse? Has the school system the elements of deliberate experimentation?
>
> Private business recognizes the necessity of experts. It maintains staffs of engineers, chemists and trained men for the solution of its problems.[1]

[1] Howe Report on the Economic Utilization of the Public School Plant for Educational and Recreational Purposes, in Report of Committee on School Inquiry, III., 428.

It may almost be assumed that a system of administration of large public interests will include the machinery for self-scrutiny, for adequate recording and reporting, and for deliberate investigation of its problem.

II. THE FUNCTIONS OF THE PROPOSED BUREAU

A division or bureau of the kind suggested should have several distinct but related functions:

1. It should receive and record the "vital statistics" of the school system—numerical facts in regard to the normal activities of the system, as well as those in regard to school morbidity and school mortality. Facts of retardation, progress through the grades, promotion, failures or repeatings, truancy, elimination and so on, should be studied as they arise, to indicate abnormal conditions or needs, and not be allowed to accumulate until after the printing of the next annual report. The bureau should study the causes of elimination or truancy, for example, whether these lie within the school system or outside.

2. It should gather and collect information on all matters directly affecting the work of the schools, whether as to aims or as to methods. This information would be largely concerned with educational experiments completed or in course, with significant results of surveys, with educational practise and usage in other cities, and the like. But it should also include many facts that are not strictly educational, or at least not in form—for example, facts about immigration as they affect the composition of the population, illiteracy, etc.; facts about significant economic changes, migrations within the city, community needs in the way of supplementary technical education, or education for leisure pursuits, etc.; or the follow-up with relation to delinquency, vocational adjustment, or the utilization of school instruction, etc.

3. It should make available to teachers and supervising officers, to members of the board of education and to other officials, as well as to casual inquirers, all information as to the work being done within the system and also as to the work being done outside the system. And such information should be made available as soon as may be after its significance becomes apparent. New discoveries should be placed where they can function without undue delay. Routine matter, and information of current importance, should be disseminated through a periodic bulletin issued by the bureau. As occasion arises (for example, in connection with legislation proposed, in budget making, in modification of curricula or of organization, etc.) special printed or manuscript reports should be prepared.

4. It should ascertain from time to time the condition and the important facts about the material with which the schools have to deal—*i. e.*, the children. This may be through the analysis of current statistical or other data, or through the institution of special tests. This would include problems of health, of defectives (whether physical or mental), of the sources of children—as to racial stocks, economic distribution, and so on—and of the adaptability of children.

5. It should make direct tests of the results of school work, and it should develop methods for testing the achievements of the children in school—as by measuring their condition and attainments at the beginning of their school careers and at intervals throughout. And it should develop methods for measuring the effectiveness of other departmental activities, as, for example, the correlation between the ratings of the examiners and the subsequent performances of teachers; the relation of school results to type of organization, or to type of

supervision (as distinguished from administration or inspection) and so on.

6. It should assist in the standardization of many elements of materials and operation that are of a routine nature—as, for example, equipment and supplies, both as to kinds or qualities and as to quantities; records; school office procedure; mechanism of transfer of pupils and of teachers; mechanism of program making; specifications for personnel, etc.; methods of filing, and so on. Other types of problems of current significance and subject to quantitative treatment will suggest themselves, and new ones are constantly arising.

7. It should interpret statistical and other records, the results of special tests and measurements, and the results of experiments. Thus, it might find sources of inefficiency or of otherwise unsatisfactory conditions by analyzing tests and records for differential factors—as, for example, sex, nationality or racial stock, local environment, type of school organization, home conditions, home work, economic factors. And it might thus discover desirable features worthy of wider application. By such studies the bureau should help to determine the conditions most favorable to the accomplishment of the school's purpose—as, for example, the most productive rates of advancement, or the most profitable time allotments to various school subjects in successive grades, and so on. Or it might help to develop standards of achievement for the various school subjects—by grades, or by types of school, or by types of local environment, and so on.

8. As the limit of available knowledge is reached there arises the need for special investigations and experiments. The division should cooperate with the teachers and the supervising officers in the conduct of such special investigations and experiments. There are many outstanding general problems that need to be studied with special regard to local conditions; and new problems are constantly arising—as, for example, How to measure the value of kindergarten work; what is the effect of part time; what is the relation of the size of class to the effectiveness of the work; what is the relation of the size of school organization to the character of the work; what is the relation of the flexibility of the curriculum to the rate of elimination, and so on.

9. It should coordinate the various experiments undertaken by the members of the teaching and supervising staff, and by investigators connected with the universities and other institutions. It should thus guide such experiments into profitable channels; it should help to provide adequate checks; and it should help to evaluate the results of such experiments in direct cooperation with those who know most about them, and with those who are likely to be most affected by the results or conclusions.

Other activities along the lines suggested will require the attention of such a bureau; and new functions, related to those mentioned, should develop with the perfection of organization and technique.

III. RELATIONS AND ORGANIZATION OF THE DIVISION

1. The division should, of course, be in direct contact with the educational work of the system. It should receive reports from various officers and divisions automatically, as a matter of routine; and it should make its special or current reports to the other divisions and officers. It should cooperate directly with the supervising officers and members of the board of education in planning various details of work; and it should cooperate directly with the teaching staff in various details and assignments of work.

It should exchange freely with analogous

organs of other departments of education, and with state and federal education officials, as well as with other institutions and investigators.

Many details of relationship need to be worked out with special regard to legal and other conditions. But the division should be made free to criticize and to recommend, with the condition only that its conclusions be adequately supported by verifiable facts.

2. There should be a comparatively small permanent staff, including the services of a trained statistician and of a trained librarian, in addition to clerical and other helpers. The permanent staff should be supplemented by the assignment in rotation of groups of teachers and supervising officers. This assignment of "line" workers to assist in the staff functions is desirable for the purpose of keeping the latter in more direct contact and sympathy with the workers in the school; and for the purpose of getting more direct cooperation of large bodies of teachers. Moreover, this assignment would make possible the training of increasing numbers of teachers in modern quantitative methods of dealing with educational problems, and would thus gradually educate the public opinion of the school community toward the experimental attitude in school work.

3. On the material side, the equipment of such a division should provide adequate filing facilities, the usual office machinery, tabulating machinery and accessories, and a special library. In the budget for this bureau provision should be made for the usual stationery, postage and so on, and for the purchase of periodicals and books not procurable through exchange; and for printing—although much of the necessary printing could doubtless be done on the presses of the various vocational and other schools of the city. Provision should also be made for the hiring of special assistance from time to time; and for traveling expenses for members of the staff or of the coopted teaching body.

Details of internal organization, like those of external relationship, must be considered with special regard to available resources, personnel, immediate problems and other factors.

IV. SUMMARY

I. WHY SUCH A DIVISION IS NECESSARY.

A special division or bureau for information and investigation service is necessary because

(1) changes are constantly taking place within the schools as well as outside;

(2) continuous knowledge of conditions and changes is necessary to guide effective readjustment of educational and administrative procedure;

(3) the separation of such staff service has been found most effective in the conduct of military affairs, of commercial and industrial enterprises, and of health and other public administration.

II. THE FUNCTIONS OF SUCH A BUREAU.

1. Recording (*a*) statistical data—as to normal school activities, as to school morbidity and as to school mortality; and (*b*) other information affecting school work—from inside the system and from outside the system.
2. Distributing (*a*) current information and (*b*) occasional and special information.
3. Measuring (*a*) the material (the children); (*b*) the work; (*c*) the results of instruction and of other activities.
4. Experimenting (*a*) for reliable tests and measures; (*b*) for standards of achievement, and (*c*) for solution of special problems.
5. Interpreting (*a*) statistical and other records; (*b*) results of measurements and tests, and (*c*) results of experiments and investigations.

III. THE RELATIONS AND ORGANIZATION OF A BUREAU.

1. Direct contact with (*a*) work of the schools; (*b*) the administrative officers; (*c*) outside agencies.
2. Exchange information and special services with various agencies.
3. Staff—permanent: (*a*) director; (*b*) statistician; (*c*) librarian; (*d*) office manager; (*e*) clerks and assistants.

   Temporary: (*a*) teachers, etc., assigned in rotation.

4. Equipment, etc.: (*a*) tabulating machinery; (*b*) filing facilities; (*c*) usual office machinery; (*d*) special library; (*e*) other provisions.

BENJAMIN C. GRUENBERG

JULIA RICHMAN HIGH SCHOOL,
NEW YORK CITY

EDUCATIONAL EVENTS

CHARGES AGAINST NEW YORK CITY TEACHERS

UNDER the auspices of the Teachers' Union, a meeting was held in the De Witt Clinton High School, on December 15, at which "Democracy and loyalty in the schools" was the subject discussed by Professor John Dewey, of Columbia University, Dr. Henry R. Linville, Leonora O'Reilly of the Women's Trade Union League, and John Boyle, a labor leader. According to press accounts, Professor Dewey said that after studying the minutes of the trial of the teachers, he decided that a teacher at the present time is subject to dismissal on charges so vague that there is no court of law in which they would have the slightest standing. The trial showed that the teachers have not obtained for themselves the ordinary civic right of a "hearing in court with orderly procedure." He asserted that the evidence of those who brought the accusations against the teachers was based on nothing more than the private views of the teachers, "not expressed in the school but brought out in purely private, personal conversations." "I don't know what this is called in 1917," the speaker continued, "but in the old days it used to be called the Inquisition." The questions asked the teachers always were:

> "What would you do in such a case," and if the teacher refused the hypothesis they promptly built up another hypothesis. Mr. Mufson was asked what he would do if anarchy was discussed in his class and he replied by asking what would a cow do if the moon was made of green cheese and he were asked to jump over it. I have come to the conclusion that it is not these teachers who are under the real indictment, but it is the method of the administration of the public-school system of New York in relation to the teaching body that is on trial. When teachers can be dismissed by twenty-four votes and it takes thirty-five votes to dismiss a janitor, there is something wrong.

The New York *Evening Post* remarks in an editorial article:

> In the matter of the three suspended high-school teachers, the expected has happened. The committee on high schools of the board of education has recommended the defendants for dismissal, after a hearing in which was disclosed a state of mental and moral obfuscation on the part of the prosecution which in any ordinary times would have excited public ridicule. The board of education will doubtless concur in the verdict and expel these men from the service of the city. The case not only was prejudged from the beginning, but was disingenuous in inception, unfair in method and un-American in spirit. Under the plausible guise of an effort to eliminate disloyalty from the teaching force in the city schools, these teachers are being punished, not for disloyalty, but for having been active in connection with the adoption by the De Witt Clinton high-school faculty of a set of resolutions criticizing by name the chairman of the committee on high schools. In the prosecution of the case, that chairman has been virtually complainant, prosecuting officer, judge, jury and executioner.

REPORT OF THE NATIONAL CHILD-LABOR COMMITTEE

BOTH good and bad records for child-welfare legislation were established by the various states in 1916–17 according to the November *Child-Labor Bulletin* containing the thirteenth annual report of the general secretary of the National Child-Labor Committee. Among the states which weakened their laws were four (Connecticut, Massachusetts, New Hampshire and Vermont) which gave to some official or commission the power to relax the child-labor law of the state during the war, and two states (New York and California) which authorized a similar relaxation of their compulsory education laws. Among the eleven states which strengthened their child-labor laws are Delaware, Illinois, Kansas and Texas, where entirely new laws were enacted and Wisconsin which added domestic service to the list of occupations for which work permits are required. Compulsory education laws were improved in six states and mothers' pension laws were enacted for the first time in Arkansas, Delaware, Maine and Texas, and amended in ten other states, making a total of thirty-

four states which now have mothers' pension laws.

In outlining the work for the next year, Owen R. Lovejoy, secretary of the National Child-Labor Committee, says:

> As standards of child labor legislation rise in the different states it becomes increasingly evident that further steps for the protection of children against exploitation must be taken in closer cooperation with other measures for the welfare of children. . . . The problem of safeguarding the child is one which involves consideration of health, education, recreation and general well-balanced training for useful service to the community. We believe it is the duty of this committee to seek a closer cooperation than has been possible heretofore in developing legislation that shall safeguard children in all these respects so that legislation may be built up as a consistent whole expressed in some clear code easily understood by all the citizens of any commonwealth.

In addition to the annual report of the National Child-Labor Committee the November *Child-Labor Bulletin* contains a study of child labor and juvenile delinquency in Manhattan by Mabel Brown Ellis, the National Child-Labor Committee's special agent on juvenile courts. The records of 1,792 children who passed through the children's court in New York in 1916 were studied by Miss Ellis to find out whether there is greater tendency to delinquency among employed or unemployed children. The popular feeling is that the child who is not employed is more likely to get into mischief than the employed child but Miss Ellis found quite the opposite to be the case—that working children contributed four times their share to the ranks of juvenile delinquency. They are also responsible for a larger proportion of serious offenses than the non-working children. "Among the recidivists, or repeating offenders," says Miss Ellis, "both the absolute and relative numbers of workers are very much in excess of the unemployed." In an effort to account for the poor showing of the working children material was gathered showing the age, amount of schooling, nationality and home conditions of these children as compared with unemployed children. In every case it was found that conditions were about the same for the two groups—that the working children had as much education as intelligent parents, and as good homes as the non-working children. "It is hard to avoid the conclusion," says Miss Ellis, "that the mere fact of being at work, irrespective of occupation, was a more potent factor than age or family conditions in bringing these boys before the children's court."

In her recommendations Miss Ellis urges better enforcement of child-labor and compulsory education laws, the establishment of more special schools for the retarded boy who is not mentally defective, and vocational guidance of children who are of the legal age for employment and are mentally and physically fit to go to work.

FEDERAL GRANTS UNDER THE VOCATIONAL EDUCATION ACT

REACHING a total of $515,436.09, federal grants of money to seventeen states under the Vocational Education Act were allotted at the meeting of the Federal Board for Vocational Education on December 21. Each of these states has complied with the terms of the law and has agreed to match every federal dollar with money publicly raised by the state or local community. The states are as follows: Alabama, Colorado, Florida, Iowa, Kansas, Michigan, Minnesota, Mississippi, Montana, Nebraska, North Carolina, Ohio, Oregon, South Dakota, Texas, Washington, Wyoming.

The payments of federal moneys to the states are made through state boards for vocational education and are divided into three general classes: Money allotted on the basis of rural population for the salaries of teachers, supervisors or directors of agricultural subjects; money allotted on the basis of urban population for the salaries of teachers of trade, home economics and industrial subjects; and money allotted on the basis of total population for the maintenance of teacher-training courses.

The approval of the plans of these states brings the total of the states whose plans have been approved up to 39. Only one state has so far failed to accept the provisions of the

Vocational Education Act, and the federal board is examining and passing upon the plans submitted by the states as rapidly as possible.

The total amount of federal money available for the use of the states in the promotion of vocational education during the current fiscal year is $1,860,000.

State by state, the latest allotments are as follows:

Alabama	$34,575.42
Colorado	15,000.00
Florida	15,405.79
Iowa	35,829.39
Kansas	27,193.28
Michigan	46,048.41
Minnesota	33,793.59
Mississippi	30,912.95
Montana	15,000.00
Nebraska	20,434.70
North Carolina	36,164.85
Ohio	78,815.42
Oregon	15,000.00
South Dakota	15,139.07
Texas	62,325.20
Washington	18,825.02
Wyoming	15,000.00

EDUCATIONAL NOTES AND NEWS

THE position of national secretary of the American Red Cross has been tendered to and accepted by Dr. Stockton Axson. Dr. Axson was formerly professor of English at Princeton University and now holds that chair at the William M. Rice Institute at Houston, Texas. The trustees of the institute, at the request of the Red Cross, have extended a furlough to Dr. Axson for the period of the war.

FRANCIS W. KIRKHAM, of the Brigham Young University, has been chosen director of vocational education for Utah, following the laying of plans to bring the state under provisions of the Smith-Hughes act.

DR. D. J. MACDONALD has been appointed associate professor of vocational education in the University of Indiana and will organize and supervise courses in various centers in the state for the training of vocational teachers.

THE United States Food Administration announces the appointment of Miss Martha Van Rensselaer, as director of home economics in New York state outside of New York City, and of Mrs. Mary Schwartz Rose to the same position for the city.

PROFESSOR CLARK W. HETHERINGTON, of Madison, Wisconsin, has been appointed state supervisor of physical education in California.

PROFESSOR S. GALE LOWRIE, of the University of Cincinnati, has been appointed a member of the committee on patriotism through education by Governor James M. Cox, of Ohio. The committee is to conduct a campaign for patriotism throughout the state by explaining the issues of the present war, its causes and various questions growing out of the war, such as food conservation, civilian relief and war finance.

GEORGE WILLIS BOTSFORD, professor of ancient history at Columbia University, died suddenly in his office at the university, on December 13, aged fifty-five years.

PROFESSOR GEORGE SARTON, lecturer on philosophy at Harvard University and editor of *Isis*, gave at the University of Chicago a public lecture, with illustrations, on December 7, his subject being "Science and civilization at the time of Leonardo da Vinci."

PROFESSOR JOHN LIVINGSTON LOWES, of Washington University, St. Louis, has been elected professor of English in Harvard University.

PROFESSOR G. H. SCOTT, for fifteen years professor of mathematics and astronomy in Yankton College, Yankton, South Dakota, has resigned to become principal of Benzonia Academy, Benzonia, Michigan.

PROFESSOR WALTER L. FLEMING has resigned his position in Louisiana State University to accept a professorship of history in Vanderbilt University left vacant by Professor Sioussat's transfer to Brown University.

DR. PERCY KENDALL HOLMES, University of Cincinnati, has been appointed director of physical education at Ohio Wesleyan University.

MR. CLARENCE MCCRACKEN, formerly superintendent at Monticello and Stuart, Ia., has been elected superintendent of schools at

Osceola, Ia., to succeed Superintendent F. P. Reed, who resigned his position to accept a place as assistant state club leader at Iowa State College.

IN Iowa, Superintendents L. C. Denslow, of Wapello; S. R. Kirkpatrick, of Winthrop, and Robert Fearing, of Wesley, have joined the army.

HERBERT S. WEST, of Rochester, was reelected president of the New York State Teachers' Association at its Syracuse meeting at which about 9,000 teachers were registered. Mrs. Florence S. Knapp was renamed vice-president, and Richard A. Searing of North Tonawanda and W. H. Benedict of Elmira were reelected secretary and treasurer, respectively.

THE second annual meeting of the Tri-State Round Table of Kentucky, Ohio and West Virginia was held in November in the new high-school building at Charleston, West Virginia, with Superintendent Laidley as chairman. The speakers at the three general sessions were State Superintendent Pearson, of Ohio; President Crossfield, of Transylvania University, Kentucky; State Superintendent M. P. Shawkey, and Dr. Waitman Barbe, of West Virginia University.

THE sixty-fourth semi-annual meeting of the Ohio Valley Round Table was held in the new high-school building at Parkersburg, November 2 and 3. The principal address was given by Dean W. G. Chambers of the University of Pittsburgh.

A CONFERENCE of the Latin departments of four colleges, Mt. Holyoke, Smith, Vassar and Wellesley, was held at Vassar College in November. Mt. Holyoke was represented by Professors Hoag, Taylor, and Waites; Smith, by Professors Brady, Gragg and McIlwain; Wellesley, by Professors Hawes, Walton and Fletcher; Vassar, by all the members of its Latin department. The conference was a consequence of correspondence about the report of the commission of The College Entrance Examination Board dealing with the form of defining requirements in Latin for entrance to college. A statement was drawn by the conference setting forth the united opinion of the four colleges; this statement will appear in their forthcoming catalogues as the preferred form of definition for the entrance requirements in Latin.

THE American University Union in Europe, whose headquarters were opened in the Royal Palace Hotel in Paris the latter part of October, has already been found inadequate for those desiring to make use of its facilities and additional hotel accommodations are being secured. Established to meet the needs of American university and college men in Europe for military and other service, the Union has already been joined by over eighty-seven of the most representative American universities and colleges. Not only has a branch office been opened at 16 Pall Mall East, London, but an additional branch at Bordeaux is under contemplation. The Rev. Anson Phelps Stokes, secretary of Yale University, has completed plans for a visit to Europe in the interest of the union and will spend several weeks in investigating conditions created by its formation.

ACCUSATIONS of disloyalty against five members of the faculty of the University of Illinois were found on December 11 to be without grounds, by a subcommittee in a report to the board of trustees of the institution. The report of the subcommittee which investigated the charges, however, suggested that the attitude of the four men and one woman toward W. H. Kerrick, an agent of the Department of Justice, was "discourteous." The board of trustees agreed with the report of the subcommittee, and announced that in the future any talk of disloyalty will be dealt with summarily and issued a warning to faculty members to guard their utterances.

THE Carnegie Foundation for the Advancement of Teaching, at the recent annual meeting of its trustees, adopted a resolution to the effect that any time spent in the army, navy or other national service during the war shall be included in the twenty-five years of teaching which are counted for qualification to receive a retirement pension.

FIVE schools in Cleveland were closed owing to lack of coal on December 14. Unless relief was obtained early in the week, it was planned to close all elementary schools for one month.

THE prudential committee of Oberlin College has voted to suspend the college work until January 16. It was thought advisable not to open the institution until relief from the coal shortage is in sight.

ALFRED UNIVERSITY has closed its doors on account of the coal shortage.

BROWN UNIVERSITY has decided to shorten its college year in order to meet the need for workers next summer in various branches of the national service. Commencement day will be May 29 instead of June 19.

BECAUSE of war conditions and the difficulty in procuring passports to Spain, the University of California has discontinued the two traveling fellowships in Pacific coast history established some years since, each of the value of $1,500.

AN American Red Cross Institute has been organized in Cincinnati for the purpose of training volunteers for relief of families dependent upon enlisted men. The Associated Charities and the University of Cincinnati will cooperate. Those who wish to continue their training may take advantage of a special course in social service, which will be offered by the university during the semester beginning February 11, 1918.

THE British Board of Agriculture, which has full knowledge of the present need of additional labor in agriculture, has been consulted by the Board of Education, and their opinion has been given as follows: "The Board concurs with the Board of Education in strongly deprecating the release of children under the age of twelve from attendance at school for employment in agriculture, believing that at no time in the history of the country was the education of the rising generation of more importance."

MISSOURI'S rural schools show many serious deficiencies in health conditions, according to a report which was undertaken by the Department of Chemistry and Sanitation at the State Normal School, which especially emphasizes the state's need of laws to provide health inspection in the schools. Attention is called to the fact that 98.2 per cent. of the schools investigated have no medical inspection whatever. Only 3.5 per cent. have dental inspection, and only 1.7 per cent. make any effort to examine children for adenoids, although 491 cases were reported to the investigating committee. Provision for testing the eyesight of children is made by only 19.4 per cent., and for testing pupils for defective hearing, by 10.7 per cent. The report cites 311 cases of malnutrition and 646 cases of defects in speech, and although 173 pupils are suffering from spinal curvature and sixty from chorea, scarcely a third of the schools have made any provision for the health and comfort of the defective child. Seating arrangements that are a perpetual invitation to spinal curvature and other physical defects are common, as the great majority of the children are required to sit at desks that can not be adjusted to their individual needs. Other conditions that militate against the health of the pupils in a large percentage of the schools are lack of disinfection of schoolrooms, polluted water supply, defective toilet arrangements, lack of modern heating and ventilating systems, and improper disposal of sewage. The committee recommends the passage of new health laws, the installation of school physicians, and more liberal support of the various public health agencies of the state.

THE Educational Museum of the St. Louis Public Schools delivered 66,810 separately boxed groups of material to the schools during the scholastic year 1916–1917, and now that the new catalogue is in the hands of every teacher in those schools the anticipated increase of orders is such that an additional delivery truck has been called into service. Every public-school teacher of St. Louis is privileged to select from the catalogue and order such collections as she can best use to illustrate her various lessons as planned for the following week. The delivery trucks reach every school once a week, collecting the ma-

terial delivered there the previous week and depositing the material ordered for the current week. The work of this museum has been so carefully systematized that the entire annual expense to the board of education of St. Louis of the museum, including all salaries, delivery service, overhead expenses, as well as constant additions to the circulating collections, averages about 14 cents per pupil served thereby.

STUDENTS of Reed College and the University of Washington held a debate on December 7, on a new plan which has five new features: First, the debates take place on neutral grounds. They will be held in the afternoon before the entire student body and guests of the two large high schools of Tacoma, Washington, and in the evening at two of the auditoriums at Camp Lewis, American Lake, before the officers and enlisted men of the army. In the second place, the speakers are assigned to sides only in accordance with their own convictions. A third new feature is the absence of judges and the provision for a vote of the entire audience by ballot. A fourth departure from traditional methods, more significant than any of the others, is the agreement to have the decision made, not according to the merits of the debate, but according to the merits of the question; so that the speakers will not be engaged in an academic performance before three judges, who are to decide how well they speak, but before an audience whom they must endeavor to convince that their side of the question is the right one. A fifth feature is the absence of any attempt to interpret the ethics of debating by formal rules. Each speaker is free to use any methods and any materials which seem to him fair. The subject for the first debate is, "*Resolved*, That at the conclusion of the present war, the nations of the world should establish an international supreme court supported by an international constabulary to enforce its

who must work, and by providing schools to teach them how to do better work, is recounted in Child Labor in Warring Countries, a brief review of foreign reports just issued by the National Children's Bureau. The prospect for better industrial education for England has lately been strengthened by the bill introduced in the British Parliament by Mr. Herbert Fisher, president of the board of education. The bill fixes the compulsory school attendance age at fourteen without the present exemptions and requires that all working children under eighteen spend at least 320 hours a year in continuation schools. In Italy, as well as in France and England, standards of labor protection were relaxed at the beginning of the war only to be restored and strengthened as experience showed that long hours, night and Sunday work, with their evil effects on health and efficiency, did not pay. And Russia, according to information received since the bulletin went to press, has found it necessary to withdraw the power given her minister of labor and industry early in the war to grant exemptions to concerns doing war work from the laws regulating hours and the employment of women, and of children under seventeen. Canada, New Zealand and Australia have maintained practically unchanged through three years of war strain their high standards of protection for working children.

DISCUSSION AND CORRESPONDENCE

THE ADMINISTRATION OF THE SMITH-HUGHES ACT

FEAR is expressed in some quarters lest the Smith-Hughes act result in a dual school system. Such a duality in the school system as exists in Germany is not favored. There is fear lest pupils be divided into two great groups, one to become producers only and one to become qualified for leadership, power and cultured living.

There is nothing in the Smith-Hughes act

cation would be dealt with merely as a labor unit and not as a producing citizen, with sufficient emphasis upon citizen.

It has been suggested that the offering of vocational education through vocational high schools as integral parts of a unified system is desirable. It is argued that vocational classes should, as a precaution, be held in the very same buildings in which civic, literary and cultural subjects are offered.

In this connection a further suggestion may be appropriate. One way of promoting unity in the school system, while providing a vocational training of which there is to-day such crying need, would be to assign credits to units of vocational work, these credits to be accepted toward graduation from high schools and for college entrance. A state board of education might properly require that high schools receiving state aid should fully honor all credits given for units of vocational work. Thus, a young man after taking night school or continuation school work under the Smith-Hughes act might, if he should desire to graduate from high school or college, be given full credit for vocational work done. A provision for such acceptance of units would knit together the existing schools and the vocational classes. By such a credit system and by the holding of vocational classes so that not only wageworkers may attend but also high-school students, the apprehension lest a dual system grow up will have less basis. There are two great objectives, one is to extend vastly the facilities for vocational education and the other is to accomplish the purpose with unity.

ARLAND D. WEEKS
DEAN OF THE SCHOOL OF EDUCATION,
AGRICULTURAL COLLEGE,
FARGO, NORTH DAKOTA

THE SCHOOLMASTER IN BELGIUM

IN April, 1917, following declaration of war by the United States, the American members of the Commission for Relief in Belgium were withdrawn from that country and replaced

plies in the Western Hemisphere to their distribution to needy Belgians and French at their city or village headquarters, had been in the hands of American volunteers. The Commission for Relief in Belgium has recently sent out to all its former members a complete list of these men, comprising 169 names. The list is an interesting study, as indicating the type of men who were willing and able to give themselves, for longer or shorter periods—a dozen of them were in the service from the beginning to the end of the work, the others for varying terms, of which the shortest were only a few months—to this magnificent enterprise. It must be remembered that they were unpaid, but that they had been carefully selected from a thousand applicants. Thirty-eight of these 169 names are to be found in "Who's Who in America."

It is not without significance that though the work was of a very practical nature—it has been characterized as an enormous grocery business, and it was that, although much more—127 of the 169 men, or more than 75 per cent., were college graduates. There has never been any question as to the efficiency with which the business was handled, from which fact it would appear that the college graduate is not only quite as generous as other men, but quite as capable.

On the list of 66 colleges in which these men were trained, we find Oxford University at the head, with 27 names. This situation is explained by the general use of Rhodes scholars, especially at the beginning of the work, on account of their accessibility. Cambridge University had two representatives with the commission, Leipzig had 4, Berlin 2, Paris 2, Geneva 2, Freiburg 2, Montpellier 1, Bonn 1, the Ecole des Sciences Politiques 1, Brussels 1, Louvain 1, the Brussels Conservatoire 1. Of American institutions, Harvard is first with 17. Then come California with 16, Princeton with 15, Yale with 13, Stanford with 8, Columbia with 7, Chicago with 4 and Kansas with 3. As to occupation, the larger

terial delivered there the previous week and depositing the material ordered for the current week. The work of this museum has been so carefully systematized that the entire annual expense to the board of education of St. Louis of the museum, including all salaries, delivery service, overhead expenses, as well as constant additions to the circulating collections, averages about 14 cents per pupil served thereby.

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THE struggle of nine of the warring countries to strengthen their human resources by making labor conditions tolerable for children who must work, and by providing schools to teach them how to do better work, is recounted in Child Labor in Warring Countries, a brief review of foreign reports just issued by the National Children's Bureau. The prospect for better industrial education for England has lately been strengthened by the bill introduced in the British Parliament by Mr. Herbert Fisher, president of the board of education. The bill fixes the compulsory school attendance age at fourteen without the present exemptions and requires that all working children under eighteen spend at least 320 hours a year in continuation schools. In Italy, as well as in France and England, standards of labor protection were relaxed at the beginning of the war only to be restored and strengthened as experience showed that long hours, night and Sunday work, with their evil effects on health and efficiency, did not pay. And Russia, according to information received since the bulletin went to press, has found it necessary to withdraw the power given her minister of labor and industry early in the war to grant exemptions to concerns doing war work from the laws regulating hours and the employment of women, and of children under seventeen. Canada, New Zealand and Australia have maintained practically unchanged through three years of war strain their high standards of protection for working children.

DISCUSSION AND CORRESPONDENCE

THE ADMINISTRATION OF THE SMITH-HUGHES ACT

FEAR is expressed in some quarters lest the Smith-Hughes act result in a dual school system. Such a duality in the school system as exists in Germany is not favored. There is fear lest pupils be divided into two great groups, one to become producers only and one to become qualified for leadership, power and cultured living.

There is nothing in the Smith-Hughes act which need result in such a cleavage. It would be only under an unwise and unwarranted administration of the act that in any particular the person receiving vocational edu-

cation would be dealt with merely as a labor unit and not as a producing citizen, with sufficient emphasis upon citizen.

It has been suggested that the offering of vocational education through vocational high schools as integral parts of a unified system is desirable. It is argued that vocational classes should, as a precaution, be held in the very same buildings in which civic, literary and cultural subjects are offered.

In this connection a further suggestion may be appropriate. One way of promoting unity in the school system, while providing a vocational training of which there is to-day such crying need, would be to assign credits to units of vocational work, these credits to be accepted toward graduation from high schools and for college entrance. A state board of education might properly require that high schools receiving state aid should fully honor all credits given for units of vocational work. Thus, a young man after taking night school or continuation school work under the Smith-Hughes act might, if he should desire to graduate from high school or college, be given full credit for vocational work done. A provision for such acceptance of units would knit together the existing schools and the vocational classes. By such a credit system and by the holding of vocational classes so that not only wageworkers may attend but also high-school students, the apprehension lest a dual system grow up will have less basis. There are two great objectives, one is to extend vastly the facilities for vocational education and the other is to accomplish the purpose with unity.

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THE SCHOOLMASTER IN BELGIUM

IN April, 1917, following declaration of war by the United States, the American members of the Commission for Relief in Belgium were withdrawn from that country and replaced by Hollanders. Thus ended a period of two years and a half during which the work of Belgian relief, from the purchasing of supplies in the Western Hemisphere to their distribution to needy Belgians and French at their city or village headquarters, had been in the hands of American volunteers. The Commission for Relief in Belgium has recently sent out to all its former members a complete list of these men, comprising 169 names. The list is an interesting study, as indicating the type of men who were willing and able to give themselves, for longer or shorter periods—a dozen of them were in the service from the beginning to the end of the work, the others for varying terms, of which the shortest were only a few months—to this magnificent enterprise. It must be remembered that they were unpaid, but that they had been carefully selected from a thousand applicants. Thirty-eight of these 169 names are to be found in "Who's Who in America."

It is not without significance that though the work was of a very practical nature—it has been characterized as an enormous grocery business, and it was that, although much more—127 of the 169 men, or more than 75 per cent., were college graduates. There has never been any question as to the efficiency with which the business was handled, from which fact it would appear that the college graduate is not only quite as generous as other men, but quite as capable.

On the list of 66 colleges in which these men were trained, we find Oxford University at the head, with 27 names. This situation is explained by the general use of Rhodes scholars, especially at the beginning of the work, on account of their accessibility. Cambridge University had two representatives with the commission, Leipzig had 4, Berlin 2, Paris 2, Geneva 2, Freiburg 2, Montpellier 1, Bonn 1, the Ecole des Sciences Politiques 1, Brussels 1, Louvain 1, the Brussels Conservatoire 1. Of American institutions, Harvard is first with 17. Then come California with 16, Princeton with 15, Yale with 13, Stanford with 8, Columbia with 7, Chicago with 4 and Kansas with 3. As to occupation, the larger number of the workers were men of affairs, engineers of Mr. Hoover's personal acquaintance, whom he knew he could trust, bankers,

financiers, lawyers, naturally and wisely a number of physicians. But men from quieter walks of life were not lacking. There was an artist, there were two or three musicians, there were several ministers; and in spite of the common conception of the schoolmaster's inability to deal with the problems of real life, there was a surprisingly long list of school men.

It is a matter of pride to the teaching fraternity that the man who next to Mr. Hoover himself has probably counted for most in the commissions work, who at least has given the work what is thus far its most brilliant and useful literary expression, is the Leland Stanford professor Vernon L. Kellogg. Dr. Kellogg and his gifted wife, who was the commission's only woman member and who has ably seconded her husband both with the work itself and with its written record, were in Belgium from June till November, 1915, and again from July, 1916, till the exodus. Dr. Kellogg is now with the food administration in Washington, and his long list of publications touching questions of zoology is being lengthened at present by lucid discussion of an even more vital problem.

Dr. David P. Barrows, dean of the faculties of the University of California, had charge of the work in Greater Brussels during the spring of 1916. Professor George McLean Harper, of Princeton, author of standard Lives of Saint-Beuve and Wordsworth, was in Brussels for a short time in 1915. Professor Thomas E. Oliver, of the Romance department of the University of Illinois, took charge in September, 1915, of the records of the English and German agreements and undertakings on the basis of which the work was allowed to continue, and during nearly a year of residence in Brussels rendered invaluable service by cataloguing these records and rendering them accessible. Professor Henry S. Pratt, of Haverford, a zoologist like Dr. Kellogg, was a member of the organization during the latter half of the year 1916. Dr. Frank Angell, the Stanford psychologist, spent the larger part of the year 1916 traveling about Belgium and collecting data for the commission. Professor Robert Arrowsmith, formerly of Teacher's College of Columbia University, was stationed at Liège for two years. Professor Herbert F. Hamilton, of Amherst, gave a year's leave of absence to most earnest and vigorous labors for the stricken country. Professor Frank P. Brackett, the Pomona College astronomer; Professor Guillermo F. Hall, of the University of Texas, and Professor R. T. House, of the University of Oklahoma, were each in the work for several months. Mr. Joseph Green, formerly of the history department of Columbia, was for nearly two years an alert and efficient inspector with duties which carried him all over the little kingdom. Of school executives, besides Dean Barrows, Principal H. F. Cutler, of the Mount Hermon Boys' School and Headmaster Carlos H. Stone, of the Stone School, Cornwall-on-Hudson, New York, worked faithfully for some months each.

It can certainly not be said that scholars have been blind to the demands of the world-crisis or more helpless than other men in meeting them.

ROY TEMPLE HOUSE

NORMAN, OKLA.

QUOTATIONS

THE HEALTH OF THE SCHOOL CHILD

THE annual report for 1916 of the chief medical officer of the Board of Education, though slightly longer than its predecessor, is necessarily a much smaller volume than we were accustomed to before the war. In his prefatory letter to the president of the board, Sir George Newman shows his consciousness of what Herbert Spencer called "physical morality" as a preponderating factor in the rearing and training of children. He defines school hygiene as the branch of public medicine which is concerned with all that affects the healthy physical development of the child of school age. Its foundations are laid, first, in a system of education favorable to sound physical growth; next in a suitable school environment; and, lastly, in the medical supervision of the individual child. School hygiene

is thus an integral part—one might even say the mainspring—of the public educational machine. It likewise forms a part of the public system of state medicine. Presented in this way, the idea of school hygiene is seen as no narrow notion called "medical inspection," but as an ideal towards the realization of which much has been done in the past decade, though very much remains to be achieved. The war more than anything else has brought home to the public the conception of the child as a primary national asset. Writing of the "volume of national inefficiency, of unfitness and suffering, of unnecessary expenditure, and of industrial unrest and unemployability to which this country consents because of its relative failure to rear and to educate a healthy, virile, and well-equipped race of children," Sir George Newman lays down the principle that no investment and no national economy can compare in results with care for the rising generation. Even more important in our view is his insistence that the goal of primary education is not an industrial "hand" but a healthy human personality—a good citizen. Thus we are carried with him to his logical conclusion that no reconstruction of the state can wisely ignore the claim of the child.

Although progress has been made, and has been maintained even in time of war, there is no room for complacency. The records of the findings of the school medical service in 1916 show all too much ill health, disability, and defect of mind and body. Uncleanliness, malnutrition, and mental backwardness debar tens of thousands of children from reaping proper advantage from the educational system provided by the country. Disease takes even heavier toll of the six million children in attendance at school. We learn that probably half the whole number need dental treatment, and not less than half a million need it urgently, while a further half million are so defective in eyesight as to be unable to take reasonable advantage of their lessons. Another quarter of a million are seriously handicapped by diseases of the ear, throat, and lymphatic glands. A year ago it was estimated in round figures that a million children of school age were so defective or diseased in body or mind as not to be able to profit reasonably by education, and there are no grounds for supposing that things are appreciably better at the present day.

The investigations of the school medical service have thus revealed the gigantic size of the evil. What is to be done? In the opinion of Sir George Newman the evil is only remediable by systematic and continuous attention. The necessary machinery is in existence; "in some areas," he says, "it is yielding adequate returns; in other areas it is insufficiently applied, or misapplied, to the problems presented; and in other areas, again, particularly in regard to medical treatment, it is in abeyance, or wholly ineffectual, due in part to a failure to foresee the vital importance to the nation of the health of the children and in part, perhaps, to a sense of false economy or even parsimony."

The problem is by no means simple, nor can it be solved by merely applying the whip and the spur to inert and obstructive local education authorities, for persons and authorities outside their control share their responsibilities and their powers. At each stage of the child's passage from infancy to adolescence there is overlapping, confusion, and competition among the authorities charged with his care; and, indeed, it is so throughout the seven ages of man. It is recognition of this which has given such strength to the movement towards a Ministry of Health. As an official Sir George Newman naturally confines his suggestions for reform to the matter immediately in hand, but his words are capable of a far wider application. "What is needed," he says, "under existing circumstances and under existing law, is therefore an effective unification of all the powers having for their purpose the healthy upbringing of youth," and "an understanding of the whole problem as one and the same problem and an administration of the law affecting it as a unified and co-ordinated administration in every locality."

The introduction to the report concludes with a statement of the steps necessary from the medical point of view in order to secure

the full value of the school medical service to every child of school age in each area. They are defined in a series of seven propositions, together constituting a minimum standard of the physical claim of the individual child. These requirements are as follows: (1) That every child shall periodically come under direct medical and dental supervision, and, if found defective, shall be "followed up." (2) That every child found malnourished shall, somehow or other, be nourished, and every child found verminous shall, somehow or other, be cleansed. (3) That for every sick, diseased, or defective child skilled medical treatment shall be made available, either by the local education authority or otherwise. (4) That every child shall be educated in a well-ventilated schoolroom or classroom, or in some form of open-air schoolroom or classroom. (5) That every child shall have daily, organized physical exercise of appropriate character. (6) That no child of school age shall be employed for profit except under approved conditions. (7) That the school environment and the means of education shall be such as can in no case exert unfavorable or injurious influences upon the health, growth and development of the child.

Simple, and we might add self-evident, as each proposition is, Sir George Newman admits that together they comprise a somewhat formidable policy of child welfare. They can not all be realized immediately, but they embody principles which every local education authority should be compelled to recognize and to carry into practise to the best of its powers. By such means "the normal child, who after all is more important to the nation and to the future than the deficient child, may grow strong, healthy, and capable."—*The British Medical Journal.*

RESOLUTION OF THE MASSACHUSETTS TEACHERS

THE following resolution was passed at the closing meeting on November 17 of the federation of the Massachusetts Teachers' Association, the Massachusetts Superintendents' Association, the New England Superintendents' Association and the American Institute of Instruction:

Resolved, That we hereby approve the report of the commission on physical education appointed last year. Physical training should cease to be largely confined to school athletics. The examination of young men applying for enlistment or called by the draft has shown that a large percentage are physically unfit for service. This is a lamentable reflection upon the educational institutions of our country, which have woefully neglected this side of the development of our youth. We, therefore, urge the passage of legislation that will insure the necessity for well-rounded, systematic physical training for boys and girls.

WHEREAS, during the current year the necessity for increased food production has not only developed lively interest on the part of many of our young people, but has also shown a surprising increase in the place which agriculture holds in the life of the state and nation,

Resolved, That we favor the introduction into grammar and high-school curricula of agricultural courses, surveying the subject from a national and international viewpoint, as well as the introduction of elementary instruction in farming and gardening.

In a democratic country opening wide its doors to the many races of the world and receiving them into citizenship, it is imperative that the public schools assume the responsibility of training its young people in the duties and principles of citizenship. Be it, therefore,

Resolved, That we second earnestly the statute recently passed by the General Court requiring the teaching of citizenship in our public schools. We contend, however, that the methods to be employed should be the result of careful study on the part of educators and should vary to meet the demands of different communities. We insist that the treatment of this subject should be broad and should not include the state-wide adoption of any arbitrary plan such as the so-called "School City" System, but rather of such plans as shall be devised by the State Board of Education or by local school boards after careful investigation of local needs and conditions.

Resolved, That we heartily endorse the recommendation of the United States commissioner of education and the commissioner of our own state that we make every possible effort to keep our boys and girls in school, believing that true patriotism demands the service of men and women of broad outlook and thorough knowledge, and

that these qualities are dependent on the years of training that our grammar and high schools can give. Also whereas, there is now an unprecedented number of positions open to loyal men and women of high scientific and academic training, and whereas, the number and importance of these positions will increase in the reconstruction period after the war, and whereas, to fill these positions it is evidently desirable that more of our young people than usual be encouraged to attend higher institutions after graduation from high school, therefore, be it

Resolved, That the colleges, in the interest of our youth and of our nation, should grant a larger measure of freedom to secondary schools in planning their preparatory courses and should also so modify their entrance requirements as to permit the entrance of any pupil who has secured the essentials of an effective education and possesses the requisite intellectual ability and maturity of purpose.

Resolved, That in the present calamity into which our country has been thrown we do all in our power to support our President and our legislators; that we preach allegiance to the flag and to the principles of democracy; that we frown upon the lukewarm, the faint-hearted and the traitor, and that we make it our business and, in so far as our influence will carry, the business of our pupils to further the doctrines of democracy, of freedom and of protection for the downtrodden.

May God grant a speedy culmination of the war and a peace securing the universal adoption of the principles of liberty, equality and fraternity.

(Signed) JOHN A. AVERY,
MABEL C. BRAGG,
FREDERICK W. KINGMAN,
Committee

EDUCATIONAL RESEARCH AND STATISTICS

RECITATION AS A FACTOR IN MEMORIZING

DOUBLING one's power to get and to use knowledge is doubtless worth far more than doubling one's knowledge. Knowing how to study is, in this sense, better than knowing other facts.[1]

But that students can not be depended upon to discover economical methods of studying by themselves has often been discovered by inquiry. Miss M. J. Baldwin, for example, found for grammar and high-school pupils that 82 per cent. studied words rather than thoughts, that they study in a mechanical sort of way which enables them to say that they have studied the lesson and spent the required time. They read the words over and over and doubtless get more confused the more they read.[2]

Testing these same students as college seniors or graduates, whose store of information has been increased many fold, we too often find that their technique of learning shows little or no improvement. These conditions have occurred in spite of the fact that since the memorable work of Ebbinghaus, hundreds of studies have been made upon the technique and economy of learning, the exposition and applications of which have filled many books. The difficulty has been that improper habits of study become established before the pupil learns the better ways. The teacher, however, should not receive entire blame for this state of affairs, for information concerning certain *fundamental* functions is wanting and much of the information now in hand is not applicable to the elementary school.

Consider for a moment an elementary class learning its spelling or grammar lesson, a vocabulary, or a poem! The individual methods of attack are myriad and with respect to *reading* and *attempted recall* differences appear most clearly. Many will be seen to read and reread the material for a while, after which an attempt is made to recite without reference to the page except where memory fails. Some begin the attempt at recitation very early, some very late. Some combine readings with attempted recitations; many confine themselves to reading and rereading entirely. The varieties of such combinations are legion. Concerning the broad functions, reading and recitation as here employed, it is imperative to have information, since they are manifestly of fundamental importance in any attempt to learn. As a matter of fact, we have only the somewhat conflicting results of a few experiments performed upon adults. The results of these studies, even were they harmonious, could not be safely applied to the work of children, and the value of recita-

[1] E. L. Thorndike, "Education, a First Book," p. 36.

[2] "How Children Study," *Archives of Psychology*, 1909, No. 12, p. 70.

tions in the learning of children has not been experimentally determined.

THE PRESENT EXPERIMENTS

The present study presents the results of an effort to determine the relative values of learning by reading as compared to learning by recitation in the case of school children working under school conditions and with the ordinary school-room methods of attack. The material selected is comparable to that with which the children are accustomed to deal in their daily work and the method of studying was the same as they would employ in learning a vocabulary or a history or geography lesson with the knowledge that at the end of the study period they would be given a written examination. Adult subjects were also tested with similar materials and methods.

The subjects used were pupils of a grammar school of Oakland, California, the members of the fourth, sixth and eighth grades acting as subjects for the tests in which nonsense syllables were used and the third, fourth, fifth, sixth and eighth grades for the tests with sense material. The sense material consisted of series of biographies of approximately equal difficulty and length taken from J. McKeen Cattell's "American Men of Science." Each class consisted of from 40 to 45 pupils.

METHODS OF PROCEDURE AND TREATMENT OF DATA

The directions given will define the two methods of study.

You are going to study for a while in one way and then later you are going to study in a very different way. To begin with you are to study by reading this list of words over and over from beginning to end (illustrate). Remember you are to read only. You should never look away from the paper; never close your eyes to see if you can say the words; in fact never say a single word unless you are actually looking at it, actually reading it.

After you have read the words through and through in this way for a while, I am going to give you a signal "Recite." When I say "Recite" you are to hold your paper in front of you so that when you are looking straight ahead, you look over the top of it and you can see it by glancing downward a little like this. Now you are to try to say to yourselves as many of the syllables as you can without looking at the card. When you can not remember the next word look down at your card and then go on saying as many of them as possible without looking. Glance at the card again whenever you can not remember. Go through the list from the first word to the last in this way and continue until the word "time" is given.

The exact combination of reading and recitations is shown in Tables I. and II.

In order to eliminate the effects of such sources of error as practise effects, unequal difficulty of texts, individual differences in ability, diurnal variations in efficiency and the like, each class was broken up into squads and method of experimental procedure arranged such that these influences balanced one another when results of the squads were combined. Such matters of technique have been described in full elsewhere.[3]

The nonsense syllables were scored by giving three points for a syllable correct in form and position; two points for a syllable correct in position with one letter incorrect; two points for a syllable correct in form but not in correct position; one point for a syllable with two letters correct but in wrong position.

The sense material was scored by dividing the original texts into details, ideas, or facts that were mentioned, to serve as a guide. One credit was given for the correct reproduction of each of these "details" when they fell under the proper name. When a detail, such as a birthplace, was correctly reproduced but applied to the wrong person, one half a unit was given.

RESULTS FOR NONSENSE MATERIAL

Table I. gives the results for the immediate tests and for a retention test given three or four hours later. At the top of the columns are given the amounts of reading (L.) and of recitation (R.) for each method, in minutes and seconds (first row) and in percentages (second row).

[3] "Recitation as a Factor in Memorizing," *Arch. of Psychol.*, 1917, No. 40.

TABLE I

Showing the Average Score for Each Grade

Immediate Test

Method	1	2	3	4	5
Combination (Time)	L. 9′, R. 0	L. 7′, 12″ R. 1′, 48″	L. 5′, 24″ R. 3′, 36″	L. 3′, 36″ R. 5′, 24″	L. 1′, 48″ R. 7′, 12″
Combination (Per Cent.)	L. 100, R. 0	L. 80, R. 20	L. 60, R. 40	L. 40, R. 60	L. 20, R. 80
Grade 8					
Av.	16.92	25.86	25.79	27.28	35.51
P. E.	0.61	0.69	0.65	0.66	0.86
Grade 6					
Av.	13.21	20.18	22.64	25.15	30.52
P. E.	0.61	0.84	0.60	0.91	1.07
Grade 4					
Av.	9.45	12.00	16.10	16.95	20.03
P. E.	0.57	0.46	0.56	0.75	0.79
Retention Test					
Grade 8. Interval 4 hrs.					
Av.	7.02	12.55	13.66	17.55	22.89
P. E.	0.42	0.78	0.57	0.67	0.88
Grade 6. Interval 3 hrs.					
Av.	5.23	7.12	9.91	12.58	20.38
P. E.	0.45	0.54	0.72	0.82	1.19
Grade 4. Interval 3 hrs.					
Av.	3.49	5.89	8.35	10.58	14.25
P. E.	0.38	0.56	0.53	0.47	0.53

The averages show a very great superiority of Method 5, in which the most recitation is introduced, over Method 1, which employs reading only. Twice as much is learned by the former as by the latter method in the same time. The small P.E.'s indicate a high reliability of these extreme differences, as well as the fact that the same thing is shown by all three classes. There is an increase in the amount learned as the relative amount of recitation becomes larger, a fact shown by all three classes. The amount of this increase is not constant, however, being marked by a particularly great difference between Method 1, which permits no recitation, and Method 2 which gave 20 per cent. of the time to recitation. The effect of a minute and a half of recitation is very marked. The increase in effectiveness is fairly constant from Method 2 to 3 to 4, but the step from 4 to 5 is somewhat greater than any one of these. The most probable explanation for this exceptional score in the case of Method 5 is that it was usually productive of a little more enthusiasm than other methods. The children anticipated this as the "record-breaking" method.

The tests for retention of nonsense syllables were given from three to four hours after the learning period, the exact intervals varying for different classes. The pupils were simply asked to write down in proper order the syllables learned earlier. In general, the results for retention of nonsense syllables are similar to those found in the immediate tests with the important difference that *the superiority of the methods involving recitation is much greater, in fact about twice as great.*

RESULTS FOR SENSE MATERIAL

Table II. shows the results for the sense material.

A glance will show that the results here obtained differ from those secured with nonsense material. In general, the advantage of reading with recitation as compared to reading alone is less great. Moreover it appears that introducing the recitation too early

TABLE II

Shows the Average Score for Each Grade

Learning Test

Method	1	2	3	4	5	6
Combination (Time)	L. 9′, R. 0	L. 7′, 12″ R. 1′, 48″	L. 5′, 24″ R. 3′, 36″	L. 3′, 36″ R. 5′, 24″	L. 1′, 48″ R. 7′, 12′	L. 54″ R. 8′, 06″
Combination (Per Cent.)	L. 100, R. 0	L. 80, R. 20	L. 60, R. 40	L. 40, R. 60	L. 20, R. 80	L. 10, R. 90
Grade 8						
Av.	20.77	22.39	24.84	24.95	25.28	23.75
P. E.	0.72	0.87	0.70	0.69	0.50	0.82
Grade 6						
Av.	15.13	16.55	18.01	17.70	17.77	16.63
P. E.	0.75	0.59	0.69	0.68	0.82	0.68
Grade 5						
Av.	11.79	13.95	15.21	15.96	15.33	15.74
P. E.	0.40	0.43	0.48	0.56	0.50	0.55
Grade 4						
Av.	14.61	16.91	16.36	18.81	17.62	17.20
P. E.	0.77	0.78	0.86	0.77	0.70	0.71
Combination (Time)	L. 7′, 30″ R. 0	L. 6′ R. 1′ 30″	L. 4′, 30″ R. 3′	L. 3′ R. 4′, 30″	L. 1′, 30″ R. 6′	L. 45″ R. 6′, 45″
Combination (Per Cent.)	L. 100, R. 0	L. 80, R. 20	L. 60, R. 40	L. 40, R. 60	L. 20, R. 80	L. 10, R. 90
Grade 3						
Av.	8.66	10.34	11.18	14.12	13.10	12.09
P. E.	0.39	0.49	0.49	0.46	0.56	0.54

Retention Test

Grade 8						
Av.	9.59	11.60	15.29	15.77	15.51	14.53
P. E.	0.37	0.50	0.46	0.54	0.47	0.59
Grade 6						
Av.	8.13	8.61	12.36	13.43	12.99	11.13
P. E.	0.43	0.40	0.60	0.60	0.62	0.57
Grade 5						
Av.	7.17	8.20	10.51	12.28	10.79	11.62
P. E.	0.27	0.29	0.39	0.44	0.36	0.39
Grade 4						
Av.	7.66	9.14	9.67	11.23	10.36	9.90
P. E.	0.49	0.44	0.47	0.61	0.47	0.47
Grade 3						
Av.	4.75	5.83	8.16	9.40	8.89	8.70
P. E.	0.36	0.39	0.41	0.43	0.44	0.34

proves to be of no value; in fact, for the lower grades it may prove to be a positive hindrance. All grades agree in showing reading alone to be a poor method of study, while a combination of 40 per cent. reading with 60 per cent. recitation seems to give best results.

The results for retention are similar except that the superiority of the optimum methods over the poorer is much more pronounced. The superiority of Method 4 over Method 1 in the immediate test, on the average, is 26.6 per cent. ± P.E. 2.5, as compared to 49.7 per cent. ± P.E. 2.4 in the retention test, or nearly twice as much.

Such are the findings in general, but certain differences between classes are to be found. These differences appear quite clearly in the results of the immediate tests. In the first place, the difference between the best and the poorest method is greater for the lower grades.

The superiority of the best over the poorest method is:

	Per Cent.		Per Cent.
For grade 8	19.02	Average for 8 + 6 =	18.00
For grade 6	16.98		
For grade 5	28.44		
For grade 4	24.83	Average for 3 + 4 =	35.99
For grade 3	47.15		

The differences do not increase uniformly with the grades, but if we average the differences for the eighth and sixth grades, also for the third and fourth, the latter figure is exactly twice the former, while the fifth grade lies midway. The older children are doubtless not so badly handicapped by the lack of an opportunity to recite; or, stated in another way, the younger children are more dependent upon the factors involved in recitation in their learning.

Another difference also appears. Optimum results may be obtained by introducing recitation earlier in the period in the case of the upper grades. For grades five, six, and eight the differences between Methods 3, 4, 5, and 6 are nil or unreliably small, but in the case of grade four the difference between Methods 6 and 4 is 9.52 per cent. ± P.E. 6.1; the same difference for grade three being 17.53 per cent. ± P.E. 6.0. The introduction of the recitation period too early has a deleterious effect upon the learning of the two lower grades. The probable explanation of this difference between the grades is to be found in the better adaptation of the older or more experienced learner to the conditions of the test.

A final difference is that the upper grades, in comparison with the lower, do better when recitation is not introduced until fairly late, *i. e.*, when the proportion of reading is greater. Table II. discloses the fact that for grades six and eight Method 3 (60 per cent. reading) is as good as any other, but for grades three and four, Method 3 is considerably inferior to Methods 4, 5, or 6. For grade three the superiority of Method 4 over Method 3 is 25.39 per cent. ± P.E. 5.65; for grade four, 14.48 per cent. ± P.E. 6.70. Grade five lies between the extremes, showing a small (5.11 per cent.) but scarcely reliable superiority of Method 4 over Method 3. This difference can not easily be accounted for, precisely, with the evidence at hand. It is probably due to the greater experience of the more advanced students in learning material—history, geography, and other lessons—in which reading plays a very important part.

In some respects, the differences between classes in the case of immediate tests are not borne out by the results of the retention tests. The latter, however, are subject to certain sources of error such as review of the material, which makes the data of doubtful value for such fine comparisons. The findings in the immediate tests are doubtless better indications of real distinctions between grades.

EXPERIMENTS UPON ADULTS

In addition to the experiments conducted with children as subjects, tests were made upon several groups of adult subjects, using materials and methods similar to those previously described. The subjects were, for the most part, graduate students enrolled in classes of experimental psychology. The results are too voluminous for detailed presentation here. It will suffice to mention that they were very similar to those obtained from the children of the upper grades. The following average results are a sample:

		Methods	(Highest Possible
	Nonsense Syllables		Score 80)
No. of Subjects	L. 10′	L. 5′ R. 5′	L. 2′ R. 8′
15	25.8	46.6	63.7
	(Sense Material)	(Highest Possible Score 60)	
15	20.6	28.4	29.9

SUMMARY OF RESULTS

1. In general, recitation, after a few initial readings, is of much more value in learning than more reading.

(*a*) In the case of nonsense syllables a method including an optimum amount of recitation will result in learning for immediate reproduction twice as much material as will a method of reading alone, and 3 or 4 hours later, 4 times as much will be recalled.

(*b*) In the case of sense material, the optimum combination gives immediate results 27

per cent. better than reading alone, the difference in a recall test 3 or 4 less later being about twice as great.

2. The results for learning nonsense syllables show no conspicuous differences between adults or children, or between school grades.

3. In learning sense material differences between the grades were found on the basis of the results of immediate tests.

(*a*) The advantage of the best methods over the poorest is much greater in the lower grades than in the upper, *e. g.*, the average advantage for grades three and four of the best method over the poorest is 35.99 per cent. as compared to 18 per cent., the average for grades six and eight.

(*b*) Introducing recitation very early in the study period has a disadvantageous effect upon the learning of the lower grades, but has little or no ill effect upon the work of the upper grades.

(*c*) The upper grades, in comparison with the lower, learn more effectively under the methods involving a relatively large amount of reading.

CONCLUSIONS AND IMPLICATIONS

The quantitative evidence here given together with a detailed introspective study indicates that reading and recitation are relatively distinct functions in the process of learning. Each has its proper office to perform, and to restrict the learning entirely to one or the other results in loss of time and energy. Reading, as the introductory function, should be employed until the learner is fairly well acquainted with the material as a whole; until a method for further attack has been tentatively adopted; and until the first attempt at recall will meet with some success without too great a distortion of the material. The optimum point for introducing it, thus, occurs early in the process, but to introduce it too early, as well as to introduce it too late, will have a detrimental effect. In determining the exact moment at which recitation can best be introduced, one must take into account the length of the lesson, the difficulty of the material, the kind of learning that is desired, the age, training and general capacity of the learner.

The function of recitation is similar to that of practise in any form of sensori-motor learning. Memorization consists in selecting certain essential bonds, eliminating the unfit, and exercising the former until the connections are so well formed that once initiated, the series of responses will occur in proper sequence. The laws of use and disuse apply here as in other forms of learning; the physiological basis is the same.

Since recitation is the equivalent to practise in other forms of learning, we should expect, as a matter of course, that any limitation of its exercise would result in retardation of learning. Our experiments have shown this to be the case. In reading, while many of the bonds may become sufficiently established for immediate use, the neural connections rapidly disappear with disuse. Thus our results show the superiority of recitation to be much more pronounced in recall than in immediate tests.

As a matter of fact, there is but little doubt that *pure* reading is a fiction; some recitation is present in every attempt to learn. The fact that reading is seldom if ever pure can be most clearly illustrated in the case of learning sense material, and this fact helps us at the same time to understand why reading, as a method of learning, is more fruitful when applied to such material than when employed with non-connected senseless material. Nearly all of the subjects admitted that their learning, especially of sense material, was not limited to pure reading. The eye moved along the line, actually seeing only occasional words; other words, in fact whole phrases, were filled in by recall. The text served only to suggest groups of words or ideas which were for the most part filled in by the learner. In so far as this subjective reproduction of the material was carried on, to just that extent the learner was reciting rather than reading, and without doubt this sort of recall was at all times considerable, becoming more and more so as the learning progressed. This fact enables us to explain, in part at least, the fact

that recitation is more essential in learning senseless, non-connected material. No associations are present in such material which enable the learner to fill in the gaps when only occasional syllables are read. The bonds between items (not being present in the material) must be built up by the learner himself, and it is in just this process that recitation is essential.

In addition to the fact that recitation as compared with reading enables the learner to form the requisite bonds more quickly and more permanently, other advantages of recitation as a form of learning were apparent. It was found that recitation leads to greater certainty of one's knowledge. Fewer blunders and erroneous recalls are made. The material is better organized; it is in more usable form. The meaning of the material is better obtained, the relations among parts become more clear and material learned by means of recitation can be more promptly recalled; the recitation time is less.

From every point of view the superiority of recitation over reading, beyond the few perusals required to furnish a general grasp of the material, is very clear. It holds for all materials and for practically all subjects, consequently the applications to teaching and learning are direct and manifestly important.

First of all it is important for teachers to be aware of the importance of recall in learning and then to impart this information in a practicable way to the pupils. The pupils certainly will not learn these things for themselves, and it is very doubtful that mere awareness on their part of economical methods will be of much value. The teacher must devise means of inducing the pupils to study by attempting recall rather than by merely continuing slavishly to read and reread words. Any method which requires the summarization of the facts of the lesson brings recall into play, since in such a process the pupil must think over the whole material, cull out the essentials, and state in his own words the main points. The teacher should encourage the pupil to react to the lesson in this way and reward him for successful attempts. Condensation of the ideas in written form, or even better, if possible, summarizing the content of the lesson mentally, is almost certain to bring rich returns. It brings into play the beneficial factors involved in recitation, develops power to distinguish the essentials from the unessentials, and may develop confidence and satisfaction in the pupil, since it enables him to be more certain of his mastery of the material.

The fact that recall is of such great importance has a significant bearing on the nature of the recitation period in the school-room. Instead of an inquisition the recitation should become a period of instruction. It should afford the pupil an opportunity to recite material previously more or less completely mastered. This need not, of course, be verbatim recitation but application or illustration depending upon recall. If the silent pupils could be induced to recall and apply the principles of the lesson as well as the pupil reciting orally to the teacher the period would become a valuable opportunity for review, affording the pupil an opportunity to discover where their knowledge is hazy, inexact or uncertain. In addition the teacher should utilize the recitation as a means of discovering the methods of learning employed and of suggesting improvements in that respect.

More advanced students may profit by the realization of the indispensable value of recitation. The college student is confronted by a situation in which the "absorbing" of information seems paramount and in which recitation is too little required. He listens to lectures and read books, but recitations are few and far between, and for just this reason it is all the more essential that recall be practised on his own initiative. Frequent reviews, thinking matters over by one's self, writing briefs, conversation and argument with other students, and the like, are means by which he may advance his knowledge more quickly and increase his power far more surely.

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SOCIETIES AND MEETINGS

THE SECTION OF EDUCATION OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE Section of Education of the American Association for the Advancement of Science will meet at Pittsburgh from December 29 to January 1. Edward Franklin Buchner, of the Johns Hopkins University, is vice-president and chairman of the section, and Stuart A. Courtis, of Detroit, the secretary. The provisional program is as follows:

SATURDAY, DECEMBER 29, 1917, 9:30 A.M.

Joint Session of the American Psychological Association and Section L

1. A standardized opposites scale, E. E. Jones, Northwestern University.
2. Estimation of apperceptive abilities, E. Bronner, Juvenile Court, Boston.
3. Elements in reading abilities, D. Starch, University of Wisconsin.
4. Part *vs.* whole: methods in learning nonsense material, L. A. Pechstein, University of Rochester.
5. Determinants of error in spelling, L. S. Hollingworth, Teachers' College, Columbia University.
6. The learning curves of the analogies, mirror reading and alphabet tests, F. A. C. Perrin, University of Texas.
7. Objective measurement of relative size of units in a judgment scale for area, S. A. Courtis, Detroit Public Schools.
8. Spelling ability and vocabularies of 200 college students, E. Murray, Wilson College.

SATURDAY, DECEMBER 29, 1917, 2:30 P.M.

1. The place of the educator in the new education, Frank B. Gilbreth, Providence, R. I.; Lillian Moller Gilbreth, Providence, R. I.
2. The overlapping of attainments in certain sixth, seventh and eighth grades, Paul J. Kruse, Cornell University.
3. Standards with an ancient history scale, L. W. Sackett, University of Texas.
4. A comparison of three methods of giving spelling tests, L. W. Webb and W. L. Uhl, Northwestern University.
5. The accuracy of Ayres' handwriting scale, Gettysburg edition, Frederick S. Breed, University of Chicago.
6. The reliability of a Ph.D. dissertation involving educational measurement, W. A. McCall, Teachers' College, Columbia University.

MONDAY, DECEMBER 31, 1917, 9:30 A.M.

1. Reading ability as a phase of study ability, H. A. Brown, State Normal School, Oshkosh, Wis.
2. Diagnosis of reading ability, C. T. Gray, University of Texas.
3. A comparison of two methods of measuring understanding in reading, Frederick S. Breed, University of Chicago.
4. Criteria for selecting which educational test to employ, W. A. McCall, Teachers' College, Columbia University.
5. Some experiments testing the efficiency of suggestive definiteness in instruction for frequently recurring ideas, A. Duncan Yocum, University of Pennsylvania.
6. The elective system and a table d'hote meal, Lancaster D. Burling, Geological Survey, Ottawa, Ont.

MONDAY, DECEMBER 31, 1917, 2:00 P.M.

1. The possibility of a speech scale for mental measure, W. B. Swift, Medical Supervisor of Speech Classes, Fall River Public Schools.
2. The pedagogical status of feeble-minded children, J. E. W. Wallin, Psycho-Educational Clinic, St. Louis, Mo.
3. Individual instruction in spelling, Ernest Horn, State University of Iowa.
4. A proposed score card for determining the efficiency of college teaching, A. Caswell Ellis, University of Texas.
5. Special abilities and disabilities, T. B. Ford, Hiram College.

Address of retiring vice-president.

The war duties of Leonard P. Ayres, of the Council of National Defense, make necessary the omission of his address as retiring vice-president.

TUESDAY, JANUARY 1, 1918, 9:30 A.M.

1. The course of study, Charles A. McMurry, George Peabody College for Teachers.
2. The scientific determination of desirable content for courses of study in civics, Ernest Horn, State University of Iowa.
3. The content of courses dealing with plant and animal life in the public schools, E. R. Downing, University of Chicago.
4. Applications of the range of information tests to the course in physiology, N. M. Grier, Central High School, St. Louis, Mo.
5. An investigation of the students' methods of studying psychology, L. W. Webb, Northwestern University.